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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Ten kilowatt nuclear research reactor of Hawker Siddley Nuclear Power Co., being offered by this British firm for £55,000 ($154,000), makes it lowest cost reactor of this type presently available in Europe. Design of the reactor, which uses enriched uranium as fuel elements, was recently proven out when first model of a Jason achieved criticality at the company's works. Orders are being solicited from U. K. and European Universities, technical colleges, and research centers. (Other MANUFACTURERS' NEWS, p.3 this LETTER.)

Special heat exchangers and coolers for the Dreadnought, Britain's first nuclear powered submarine, will be fabricated by Alco Products, Inc., Schenectady, N.Y., under contract recently placed with the firm. (Westinghouse Electric Corp. holds contract from Rolls-Royce, Ltd. to furnish the complete nuclear propulsion plant. The Dreadnought, to be similar to the U. S. Navy's nuclear submarine Skipjack, will be built in England by Vickers Armstrong.) Under the order placed with Alco, the firm's thermal products division will manufacture three salt water-fresh water exchangers, and two emergency coolers. (Other CONTRACT NEWS, p.3 this LETTER.)

A 42% increase in shipments over the like 1958 period for the quarter ended September 30, 1959 has been reported by Radiation Counter Laboratories, Inc., Skokie, Ill. Incoming orders during the 1959 period were $622,000, a 45% increase over last year, according to Ernest H. Wakerfield, president. Dr. Wakefield said he expected exceptional results for the year as a whole. (Other FINANCIAL NEWS, p.5 this LETTER.)

First chairman of the newly-formed Inter-American Nuclear Energy Commission will be Guillermo Sevilla-Sacasa, Ambassador of Nicaragua. Dr. Sevilla-Sacasa was elected at the Commission's first meeting in Washington last week. Marcel Roche, president of the Institute for Scientific Research of Venezuela was chosen as vice chairman. Main objective of the Commission is to promote cooperative training and research in the nuclear sciences among the American republics.

New uranium treatment plant at Malvezie, in Southern France, has been completed ahead of schedule. Plant, constructed by two chemical companies under the direction of the French Atomic Energy Commission, is expected to produce about 1,000 tons of uranium a year for nuclear purposes. It will be operated for the French Government by the Societe d'Etudes et de Traitement de l'Uranium. (Other BUSINESS NEWS, p.2 this LETTER.)

Exports of Canadian uranium ores and concentrates in August, 1959, were valued at $21,035,000; this compared with $21,055,000 for the similar 1958 period. During the first eight months of 1959 total value of uranium exports was $203,483,000, an increase of over 26% from the $160,649,000 in sales registered in the same period in 1958. (Uranium now accounts for some 6% of all Canada's exports, with only wheat and forest products ahead on a dollar basis. U. S. is biggest buyer; sales are second only to Canadian newsprint bought by the U. S.). (Other PRODUCT NEWS, p.3.)

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ATOMIC ENERGY BUSINESS NEWS...

OPERATIONS OF DIVERSIFIED NUCLEAR FIRM CONSOLIDATED: Vitro Chemical Co. has been formed by Vitro Corp. of America, New York, to consolidate a number of the company's chemical and metallurgical operations. Grouped into Vitro Chemical are Vitro Uranium Co., Salt Lake City, Utah; Heavy Minerals Co., Chattanooga, Tenn.; and Vitro Rare Metals Co., Canonsburg, Pa. These are all wholly-owned by Vitro Corp., except for Heavy Minerals, in which majority control is with the Pechiney Group of France, through Societe de Chemique des Terres Rares.

NEW FIRMS IN NUCLEAR FIELD: New company in the nuclear field in the east is Atomium Corp., Waltham, Mass. Headed by Hugh F. Stoddart, formerly of Baird-Atomic, the firm will produce special medical nuclear instrumentation; automatic nuclear systems; and controlled background low-level radiation detection facilities. In the west, U. S. Nuclear Corp. has been organized by Allen M. Goldstein, formerly of Nuclear Corp. of America. The company, located at Burbank, Calif., will offer a variety of health physics services; do research and development work; and supply labeled compounds and industrial tracers.

PLANS HALTED FOR IRRADIATED FOOD PLANT: All work has been stopped on equipment and plans for the U. S. Army's $7.5 million Ionizing Radiation Center at Sharpe General Depot, Stockton, Calif. The Center was to develop production techniques for irradiation of foods, mainly the high dose sterilizing treatments permitting long term storage without refrigeration in which Army interest is mainly centered. In explaining the halt, the Army said certain basic technical and economic questions about the process have not yet been determined in the laboratory and construction of the Center would therefore be premature. Varian Associates, which has the contract for the linear accelerator to be used in the Center, has spent about $600,000 of the $1 million contract. Curtiss-Wright, who were to furnish the high intensity food irradiator using cobalt-60, have spent about $350,000 of the $1.6 million contract. The Army's Corps of Engineers have spent about $375,000 on design drawings, specifications, test boring, and other preliminary work. Also affected is Irradiated Products, Inc., New York, formed by four companies to do at its own expense production planning for the plant. These firms: Armour & Co.; Food Machinery & Chemical Co.; General Foods Corp.; and Continental Can Co.; have spent $133,000 on the project.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED October 6, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Electron irradiation. John G. Trump, inventor. No. 2,907,704 assigned to High Voltage Engineering Corp., Burlington, Mass. (2) Compact neutron source. Alfred J. Gale, inventor. No. 2,907,884 assigned to High Voltage Engineering Corp., Burlington, Mass.

PATENTS ISSUED October 6, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Radioactivity measuring device. Jean-Claude Roucayrol, Erich Oberhausen, inventors. No. 2,907,881 assigned to Centre National de la Recherche Scientifique, Paris, France. (2) Neptunium solvent extraction process. L. R. Dawson, P. R. Fields, inventors. No. 2,907,628 assigned to USAEC. (3) Preparation of uranium hexafluoride. S. Lawroski, A. A. Jonke, R. K. Steunenberg, inventors. No. 2,907,630 assigned to USAEC. (4) Method of reducing plutonium with ferrous ions. J. L. Dreher, D. E. Koshland, S. G. Thompson, J. E. Willard, inventors. No. 2,907,631 assigned to USAEC. (5) Method of controlling corrosion in a nuclear reactor. C. P. Kidder, C. K. Sloan, inventors. No. 2,907,689 assigned to USAEC. (6) Stripping process for plutonium. M. Kolodney, inventor. No. 2,907,700 assigned to USAEC. (7) Thermal fission reactor compositions and method of fabricating them. Alan Blainey, inventor. No. 2,907,705 assigned to USAEC. (8) Nuclear reactor fuel element. W. A. Horning, D. D. Lanning, D. J. Donahue, inventors. No. 2,907,706 assigned to USAEC. (9) Pressure transducer. H. H. Sander, inventor. No. 2,907,897 assigned to USAEC.

PATENTS ISSUED October 13, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Process for recovering heavy hydrogen and heavy water. Jan Hoogschagen, inventor. No. 2,908,554 assigned to Stamicarbon N. V., Heerlen, Netherlands. (2) Production of monoenergetic neutrons. J. O. Ely, inventor. No. 2,908,823 assigned to Socony Mobil Oil Co.

ATOMIC ENERGY CONTRACT NEWS...

Contract in amount of $838,163 has been awarded by the USAEC to Nuclear division of The Martin Co. to continue its work on a liquid fluidized bed reactor. Martin's Nuclear division previously conducted a six-month feasibility study for the USAEC, and had undertaken company-sponsored investigations of the system as early as 1955. J. Donald Rauth, manager of the Nuclear division, pointed out that the fluidized bed concept, which eliminates control rods and equipment to insert and withdraw them, allows for construction economies. (In the fluidized bed concept, layers of uranium pellets cover a perforated plate; chain reaction is initiated when proper separation is achieved by upward water pressure.) Mr. Rauth noted that Martin's studies indicated fuel would be consumed at a uniform rate throughout the reactor core, and that heat transfer characteristics should be satisfactory. He also anticipates a very high conversion of uranium-238 into plutonium. Under Martin's new contract, its staff will continue with analyses and tests of the system and will build and operate a critical experiment. They will also study abrasion effects on various types of fuel pellets, both with and without metal cladding.

Contract to develop particle size analyzer has been received by Evans Research & Development Corp., New York, from the USAEC. The work, under the Commission's isotope development program, calls for Evans to undertake the design, construction and commercial development of a soft-beta particle size analyzer. It will be based on the original concept or the instrument as proposed to the USAEC by Evans.

Three research contracts totaling some $250,000 have been awarded Crane Co., Chicago, to develop valves for nuclear applications. Largest of the contracts, for $172,000, covers development program to provide a high temperature nuclear reactor system stop valve for a maritime helium-cooled reactor for surface vessel propulsion. The work is a subcontract to Electric Boat division of General Dynamics Corp., who are the prime contractor to the USAEC and the Maritime Administration. Second contract involves design study for the USAEC of a reactor throttling valve for liquid sodium cooled reactors. This will be a gate valve to handle molten sodium at temperatures over 1200 deg. F. A new valve concept is being proposed here, to obtain a linear throttling characteristic. The last contract is a design study order from the Navy's Bureau of Ships for a device to provide flexibility in a limited space for steam piping between steam generators and turbines of nuclear power plants aboard Naval vessels.

PRODUCT, PROCESS, INSTRUMENT NEWS...

PRODUCT NEWS:- Radiation-equivalent manikins that duplicate man's body reactions to ionizing radiation, trade-named Remab and Remcal, are now being offered by Atomic Accessories, Inc., Bellrose 26, N. Y. Constructed of radiolucent shells, both are filled with a solution which has the same radiation-interaction properties as human soft tissues. Remab acts as an absorber of radiation, while Remcal acts as an emitter. Bulletin REM-30 available from the company gives full details, prices.

PROCESS NEWS:- A skull-type vacuum arc-melting furnace, recently placed into service at Battelle Memorial Institute, Columbus, Ohio, makes it possible for such reactor fuel elements as uranium monocarbide to be cast in their final form. Since the metals are melted in water-cooled skulls of the same material, contamination of reactive and refractory metals cast in the furnace is kept to a minimum. Temperatures of above 6000 deg. F. are obtainable with the high-current arc used. Battelle plans to use the furnace in studies involving uranium, zirconium, niobium, chromium and tantalum.

Developed by Bureau of Mines Intermountain Experiment Station, Salt Lake City, is a method which may minimize uranium waste disposal problems of mill operators. The new method had originally been developed to conserve water in acid leach-solvent extraction processes. In operation, barren solution from solvent extraction units is used to replace the fresh water commonly used for countercurrent decantation; this results in a reduction of process water requirements. Since normally some three to four tons of water are required per ton of ore, volume of slimes discharged to streams is reduced as well as the amount of radioactivity placed in tailings.

MANUFACTURERS NEWS:- New technical services department has been set up by Tracerlab, Inc., at its western division, Richmond, Calif. Services offered include fission product, heavy element, fuel element and activation analyses; preparation of radioactive sources and inorganic compounds; leak testing; environmental surveys; and radioactive decontamination. The new department has staff totalling fifty-five.

NEW BOOKS & OTHER PUBLICATIONS...

Physical and Engineering Properties of Materials for Nuclear Fuel Elements. Henry H. Hausner, Polytechnic Institute of Brooklyn, N.Y. Eighty tables of physical and engineering data covering elements, alloys, compounds and materials of interest to those working on design, fabrication or use of nuclear fuel and control elements. 55 pages. -- Sylvania-Corning Nuclear Corp., Bayside, L.I., New York. ($1.00)

Atomic Energy in the Soviet Union. Arnold Kramish. Nuclear research in the USSR: its history, present scope, and future possibilities. -- Stanford University Press, Stanford, Calif. ($4.75)

Proceedings of International Conference on Nuclear Physics. Papers cover low energy nuclear interactions and nuclear structure; conference held by Unesco and International Union of Pure and Applied Physics in Paris, July 7-12, 1958. 950 pages of which 770 are in English, and 180 in French (French and Russian contributions). -- Crosby Lockwood & Son, Ltd., 26 Old Brompton Rd., London S. W. 7, England (140s.)

Men and Atoms. William L. Laurence. Development of applied atomic energy in the U. S. by the science editor of the New York Times. -- Simon & Schuster, Inc., Rockefeller Center, New York. ($4.50)

Atomic Energy Rules & Regulations; revised to June, 1959. Includes basic manual and supplementary material. No. Y3/At 7:6-2/059. ($3.00; $1.00 additional for foreign mailing.)...Roentgens, Rads & Riddles. Proceedings of symposium on supervoltage radiation therapy at Oak Ridge, Tenn., July 15-18, 1956. M. Friedman, M. Brucer, E. Anderson, eds. 495 pages. No. Ys. At 7:2 R62. ($3.50)...Energy Dissipation by Fast Electrons. L. V. Spencer, National Bureau of Standards. NBS Monograph 1. One of a series of reports on radiation physics data. 70 pages. (45¢). -- Sup't. of Documents, Wash. 25, D.C.

Application of Atomic Science in Agriculture & Food; Vol. II. Technical papers and report of European conference held at O.E.E.C. headquarters, July, 1958. 248 pages. -- O.E.E.C. Mission, 1346 Conn. Ave., N. W., Wash. 6, D.C. ($4.00).

Task Force Evaluation Report; Small Sized Nuclear Power Plant Program. Capabilities and status of the boiling water, pressurized water, and organic moderated reactor concepts. No. TID-8508. ($1.75)...Statistical Survey; Generating Cooperatives & Municipalities. No. TID-8509 ($1.25)...Brief Summary of Boiling Water Reactors in the 5 to 40 eMW Range. No. TID-8510. ($2.75)...Small-Sized Organic Moderated Reactors. No. TID-8511 ($1.25)...A 20,000 Kilowatt Organic Moderated Power Plant. No. TID-8512. ($2.75)...Survey of PWR Power Plants, 10-30 eMW Size. ($4.00). -- Office of Technical Services, Wash. 25, D. C.

NOTES: List No. 46, Sept., 1959, of the U. K. Atomic Energy Authority, 11 Charles II St., London S. W. 1, England, includes publications most recently made available generally. Details may be obtained from the Librarian, A.E.R.E., Harwell, England.

MANUFACTURERS' LITERATURE: Quantitative Determinations by Radiometric Analysis is technical bulletin no. 6 available on request from Nuclear-Chicago Corp., Des Plaines, Ill.

Tracerlog for September, 1959, issued by Tracerlab, Inc., Waltham, Mass., lists this firm's new lowered prices for carbon-14 compounds.

MEETINGS, COURSES, CONFERENCES...

CONFERENCES: Two day conference on the industrial uses of radioisotopes is scheduled for Dec. 1-2, 1959, in Detroit, Mich. Sponsoring organizations are Greater Detroit Board of Commerce; Detroit Nuclear Council; and Engineering Society of Detroit. Applications of radioisotopes in gauging, radiography and industrial tracing will be reviewed and explained. Full details of the meeting may be obtained from H. Richart, Board of Commerce, 320 W. Lafayette St., Detroit 26, Mich.

Annual conference of the Atomic Industrial Forum is planned for Nov. 2-4, 1959, in Washington, D.C. Sessions will include radioisotopes and radiation applications; the Euratom program; technical and economic prospects for nuclear fuels; experience from operating reactors; and other subjects. The conference will be in conjunction with the Winter meeting of the American Nuclear Society being held Nov. 4-6, 1959 at the same location (Sheraton-Park hotel) in Washington.

WORKSHOP: A two day workshop on industrial uses of radioisotopes is being held in Morgantown, W. Va., Nov. 19-20, 1959 under sponsorship of USAEC and W. Virginia University.

NEW RESEARCH FACILITIES...

CYCLOTRONS BEING BUILT: First construction work has started in connection with two U. S. cyclotrons of advanced design and characteristics. At Oak Ridge National Laboratory, excavation began last fortnight for the Oak Ridge relativistic isochronous cyclotron. This will be a 76-inch cyclotron capable of accelerating protons up to 75 Mev and various ions up to about 100 Mev. Laboratory staff are designing the cyclotron and its immediate components, which is expected to be one of the most versatile medium energy cyclotrons in the world. (Present excavation is being done by H. K. Ferguson Co.; bids for a general construction contractor will be invited this month. Catalytic Construction Co., Philadelphia, is providing architect-engineer services for the facility. Total cost of the project is estimated at $3,725,000.)

Construction of the new 88-inch cyclotron at the University of California's Lawrence Radiation Laboratory, Berkeley, has started. Expected to cost $4,600,900, the machine will be of novel design with a versatility not possessed by other cyclotrons. Its intense beam will allow production of important isotopes of the heavy elements. Among other projects, it will be used for continuing research on the transuranium elements.

REACTOR PROJECTS UNDERWAY: Work has begun at Maryland University on a $70,000 building which will house nuclear research reactor to be supplied by Allis-Chalmers Corp. A reactor simulator bought from Minneapolis-Honeywell will also be located in this building, as well as an existing subcritical reactor.

Permit is being granted by the USAEC for the 10 thermal kilowatt light water moderated and cooled nuclear research reactor at the University of California, Los Angeles. AMF Atomics division of American Machine & Foundry Co. has contract to design and construct the reactor which uses enriched uranium as fuel, and is modification of the Argonaut reactor developed by Argonne National Laboratory. Some $203,350 has been given by the USAEC to the University to assist financing this project; in addition, fuel charges are being waived by the Commission through June 30, 1961.

Letter of commitment in amount of $350,000 issued last fortnight to government of Viet-Nam by the U. S. toward cost of nuclear research reactor project was 19th such grant. Money will be used for Viet-Nam's Institute of Nuclear Research, being constructed at Delat. Work there is being supervised by Kaiser Engineers, of Oakland, Calif. Nuclear reactor for the Institute will be a 100 kilowatt General Atomic Triga-type, mark II, using aluminum-clad solid fuel elements.

NEW RADIOCHEMISTRY LABORATORY: Radiochemistry laboratory has recently been completed by East German Nuclear Research Institute, at Rossendorf, E. Germany. The laboratory will concentrate its work on production of short-lived isotopes.

ATOMIC ENERGY FINANCIAL NEWS...

MERGER OF URANIUM COMPANIES APPROVED BY SECURITIES & EXCHANGE COMMISSION: Atlas Corp. has received permission from the SEC to merge five affiliated uranium mining companies into one company. Atlas, an investment company headed by Floyd B. Odlum, has its largest holdings in uranium mining and milling firms. Companies involved are Hidden Splendor Mining Co.; Lisbon Uranium Corp.; Rio de Oro Uranium Mines, Inc.; Radium King Mines, Inc.; and Mountain Mesa Uranium Corp. The principal company in the merger, and the survivor, Hidden Splendor, had about $11,500,000 of tax deductions due to losses. The deductions will be available to the merged company and can be absorbed more rapidly. Valuation of Hidden Splendor after the merger, and as approved by the SEC, was put at $52,493,000. Of this amount, $10 million in the balance sheet was attributed to preferred stocks and $42,493,000 to common shares. Atlas will hold about 97% of the common, and 12% of the preferred of Hidden Splendor after the merger.

STOCK SPLIT PLANNED: Proposed three-for-one stock split, approved by the directors, will be voted upon at a special meeting of United States Radium Corp. on Dec. 15, 1959. If stockholder approval is granted, authorized shares of the company will be increased from 100,000 to 300,000 shares of common.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

October 27, 1959